

WEEKLY EDITION
OF THE

PUBLISHED BY

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APICULTURAL NEWS ITEMS.

EDITORIAL AND SELECTED.

The Kansas Bee-Keeper has removed its location from Columbus, Kans., to Liberal, Barton County, Mo.

The Rev. L. L. Langstroth has so far recovered from the attack of paralysis sustained last February, as to have the comfortable use of his limbs. His general health is also improving. His many friends will be glad to hear of this improvement.

The best honey weather is when it is warm and moist—when the air is full of electricity and a storm approaching. We have had so much of that kind of weather lately, that we may confidently expect a good honey harvest. That is what, not only the bees but apiarists generally, are longing for.

Let it be a National Union.—Messrs. Dadant & Son make the following suggestions: "We are willing to put our shoulder to the wheel for a National Bee-Keepers' Union, and to pay our share, whether it may be \$1.00 or \$25.00. We suggest that a special request to unite in this Union, be sent to all the bee-papers and their subscribers. We must have a National Union or none."

This suggestion is "good and timely," and we publicly invite the editors of all bee-papers to unite in this noble work, and would cheerfully vote for the following as the officers of the temporary organization, if these editors will co-operate with the Union:

President—A. I. Root, Medina, Ohio.
First Vice-President—A. J. King, New York.
Second Vice-President—A. G. Hill, Kendallville, Ind.
Third Vice-President—Silas M. Locke, Wenham, Mass.
Fourth Vice-President—H. Scovell, Liberal, Mo.

This would unite all the bee-papers in the Union, and we sincerely hope that it may induce all of them to work together for the general good. As soon as the organization is completed, we will cheerfully relinquish our position to any one the Union may choose, but the BEE JOURNAL will give its unwavering support to the Union and all its officers.

If Canadians, who are governed by other laws, find such an organization necessary or desirable, the editor and subscribers of the Canadian paper are all cordially invited to co-operate with this Union.

Bee-Keepers' Union.—We have had many enthusiastic letters endorsing the plan of organization—and some suggestions about amendments to the Constitution submitted last week. We have incorporated the suggestions, and publish it again on the next page. The chief alterations are, that as a fund is needed at once for the Freeborn case, an entrance fee of one dollar should be paid, so as to make the fund available at once. Now we think the organization is ready to commence work, and we are ready to enroll members as soon as they send in the membership and entrance fees—\$1.25.

Throwing Dirt.—When the Canadian bee-paper started into life, each of the editors of the bee-periodicals in the United States gave it a good notice, bidding it welcome.

The AMERICAN BEE JOURNAL objected to its name because of the danger of mixing things up, but added: "We have none but the kindest feelings toward the new paper; but its name should be changed."

The editor of the Canadian paper then remarked, on page 50: "We are determined to work harmoniously with all other bee-periodicals." With this assurance, and desiring such a result, we concluded not to criticize anything in it, so as to cement "the bonds of peace," all around. But imagine our surprise, after reading the editor's further assurance in these words: "We know no jealousy, and strive to carry out our motto, 'the greatest possible good, to the greatest possible number,'" to find, in the same paper, much that was "offensively personal" by his correspondents, of which the following is a sample. One says:

"If you 'run out' all other American bee-papers and occupy the land, all right. Newman, of the A. B. J., and Root, of *Gleanings*, have both been in the harness so long that they are probably looking for a place to rest."

Does our Canadian neighbor call that living up to its motto? It looks more like declaring "a war of extermination"—and if that comes, there will be "lots of fun" for "the boys," as that writer puts it. But that kind of "fun" is not what should engage the attention of the bee-papers when there are so many subjects of vital importance before us. We fully endorse a kind but stinging rebuke administered by Bro. Root in the last issue of *Gleanings* in these words:

"When new bee-papers start up (and doubtless they will start, as they have started) will they please to bear in mind that it is neither 'courtesy' nor 'policy' to commence 'pecking' at old-established papers? Suppose you should attend an evening party, and commence right out, before all, abusing some one who is present; what would be thought of you, if you persisted in dragging your personal likes and dislikes into the presence of a well-bred company? You would probably be severely let alone, and you might possibly be shown the door, in some circles. Well, whatever appears in a public paper is, in one sense, before the people, and in a place where everybody is bound, by all rules of etiquette, to behave himself as becomes a gentleman. I have sometimes thought that the opinion seems to have obtained a lodging in some hearts, that a man might build up himself or his paper, by saying sneering and insulting things of those who had acquired at least a tolerably fair standing, by years of tolerably fair service."

Now, let us have no more of such nonsense, but let the new papers get down to work for the good of the pursuit of bee-keeping, if that is the object of their existence. They can never build themselves up by trying to run others down! Never!!

Foolish Jealousy.—We dislike to have any controversy with other bee-papers, but it seems to be necessary to straighten out an entanglement which some of them have gotten into.

A quarter of a Century ago, when the AMERICAN BEE JOURNAL was started, it was the only publication devoted to bees and honey in America—now there are six others, besides some 15 or 20 which have ceased to exist!

In 1881 when the Weekly BEE JOURNAL was started, there was not another bee-paper published weekly in the World—now there are three (one of them being 6 months old, and the other 3 months), and like all little children, they have their "squabbles" about small matters. The facts are as follows:

The Kansas paper was a monthly until last September, when it ceased to appear until the middle of December, when it issued the three numbers to complete the year, in that month, so as to begin the year 1885 on time, and then continued the weekly issue.

Just at that time Mr. Allen Pringle wrote the article, which we re-publish in this issue of the AMERICAN BEE JOURNAL, from the *Popular Science Monthly*, which stated that the AMERICAN BEE JOURNAL was the only weekly devoted to bee-culture in the United States. This article was in the hands of the publishers of the *Science Monthly* several months. When it was "put in type," a proof was sent to Mr. Pringle, and he added the sentence about the Canadian bee-paper then about to be published. He knew nothing about the Kansas weekly and said nothing about it, for it did not exist when the article was written! Had the matter stopped there, no trouble would have occurred, in all probability. But the Canadian bee-paper in May re-published the article, and failed to give credit to the *Popular Science Monthly*, as it should have done, leaving its readers (and particularly its Kansas cotemporary) to think that the article was just then written for the Canadian bee-paper. Thereupon the Kansas weekly administered a rebuke to Mr. Pringle, for presuming to write about the apicultural literature of the United States without knowing that the Kansas paper was being published weekly.

Mr. Allen Pringle replied in our Canadian cotemporary that as the AMERICAN BEE JOURNAL has for years claimed to be "the only Weekly bee-paper in the World," it also must have been ignorant of the existence of one in Kansas! We did rightfully claim until last December, that it was "the only Weekly bee-paper in the World;" but we promptly noted the birth of the Kansas weekly, in an editorial on Dec. 24, 1884, and of the Canadian weekly on April 15, 1885. Could more be reasonably required?

The cause of the whole "muddle" was the re-publication of that article without credit by our Canadian cotemporary.

We have none but the kindest feelings toward all other bee-papers (both monthly and weekly), and desire, above all things, that "without strife or vain-glory," all will devote their whole energies to the advancement of the pursuit of apiculture, and work together harmoniously for that end.

The Premium List of the Nebraska State Fair, at Lincoln, Sept. 11-18, 1885, is received. The premiums in the Apian Department amount to \$120—\$25 each being offered for the best crate of comb honey and the best colony of bees. M. L. Trester, of Lincoln, is the Superintendent of this Dept.



WITH

REPLIES by Prominent Apilrists.

Putting on Sections.

Query, No. 77.—When is the proper time to put surplus boxes on the hive of a new colony?—L. C. W.

G. W. DEMAREE says: "I put on my section-cases as soon in the season as it can be done with safety to the brood. I think it is a mistake to put it off till the honey harvest is upon the bees. They will sometimes waste time looking through the surplus department before going to work."

DR. C. C. MILLER answers thus: "As soon as the queen has commenced laying."

DR. G. L. TINKER remarks as follows: "The proper time is immediately, using a queen-excluder if the colony is hived on a few frames. In such a case care should be taken to give free upward ventilation for two days, lest the bees become too crowded and desert the hive."

PROF. A. J. COOK replies thus: "As soon as hived on foundation."

G. M. DOOLITTLE answers thus: "At the time of hiving, using so few combs, or foundation below so that they will be compelled to go to work in the sections at once."

JAMES HEDDON replies as follows: "If the swarm is large, and you have full sheets of foundation in the brood-frames, you will often do well to place one case of sections (and they should also be filled with foundation) right on the hive when the swarm is run in; otherwise, about 48 hours afterward, if you use full sheets of foundation below, and 6 to 8 days after hiving, if you have them on empty brood-frames, or those with guides only."

W. Z. HUTCHINSON says: "My advice would be to put on the boxes at once."

MESSRS. DADANT & SON advise thus: "When the hive is nearly full with brood and honey, and the honey season is likely to continue."

Getting Early Swarms.

Query, No. 78.—If an early swarm is desired from a parent colony, would there be a gain or loss by putting on surplus boxes?—L. C. W.

DR. C. C. MILLER says: "Giving surplus room may retard swarming."

DR. G. L. TINKER answers thus: "Heat is one of the elements in forcing early swarms. Putting on the sections before the hive is crowded with bees retards swarming, as it does also brood-rearing. Later on, preparations for swarming may be begun, when the placing on of the sections would not delay it."

PROF. A. J. COOK answers as follows: "There would be a loss. Keep them close, and stimulate them by feeding."

G. M. DOOLITTLE replies as follows: "There would be a little loss in time of the issuing of the swarm, but a gain in honey which will more than overbalance that."

JAMES HEDDON says: "There would be a gain, as a rule, if you count the surplus honey worth anything; in some instances a gain any way."

W. Z. HUTCHINSON answers thus: "If the object is a gain of bees, do not put on the boxes."

G. W. DEMAREE answers as follows: "As a general rule, I have found it the best to put on the surplus boxes at the proper time. I have sustained more loss by trying to force swarms, by crowding the bees, than by giving them too much room."

Utilizing Empty Brood-Combs.

Query, No. 79.—I have lost nearly all my bees, and I have nearly 500 Langstroth brood-frames filled with nice, straight worker combs built on full sheets of foundation, mostly wired. With 10 or 12 colonies to start with, how shall I manage to use all of these combs that can be used this season?—Cresco, Iowa.

DR. G. L. TINKER says: "The best plan to use so many combs and increase the few colonies, would be to first get them strong, then tier up the hives with the empty combs. When more or less filled with honey, purchase queens and divide until all the combs are utilized."

PROF. A. J. COOK remarks thus: "With such combs one can, by using care, increase very fast, and thus soon make the loss good. Add them to the brood-frames as fast as possible, and get all the brood you can."

G. M. DOOLITTLE answers thus: "Form small colonies as early in the season as you can do so without materially injuring the 10 or 12 left, by the plan I gave on page 277, giving them the frames of comb to care for, and they will build up to full colonies by fall."

JAS. HEDDON says: "1. Buy some cheap colonies; 'cheap,' because in worthless or box-hives. Drive the bees into your combs by the plan of 'modern transferring.' Aim to produce only extracted honey, and use a set of the combs on each hive for that purpose. 2. If you cannot buy any colonies, divide those you have as fast as you can. Make those 12 queens use as many of the combs as they will, and get more queens reared to lay in them, as fast as you can. While thus preparing to use them, keep them in a cool, airy place, and so they do not touch each other within at least $\frac{1}{2}$ of an inch."

W. Z. HUTCHINSON remarks thus: "Buy queens and 'make up' colonies."

MESSRS. DADANT & SON answer as follows: "Divide the bees and feed them up till they are strong, and

divide again. A good plan would be to buy dollar-queens for the swarms."

G. W. DEMAREE says: "My plan would be to use no more of them than I could employ profitably, and hang the rest of them up in a light room, and preserve them for future use."

DR. C. C. MILLER replies as follows: "Build up the 10 or 12 colonies strong, and keep them strong. Draw from them frames of brood with adhering bees, say 2 frames at a time from each colony, to form nuclei, replacing these with empty combs. Then repeat this as often as the strength of the colonies permits, and build up nuclei into strong colonies, which in their turn will yield aid for other nuclei."

CONSTITUTION OF

The National Bee-Keepers' Union.

ARTICLE I.—This organization shall be known as the "National Bee-Keepers' Union," and shall meet annually, or as often as necessity may require.

ARTICLE II.—Its object shall be to protect the interests of bee-keepers, and to defend their rights.

ARTICLE III.—The officers of this Union shall consist of a President, five Vice-Presidents, and a General Manager (who shall also be the Secretary and Treasurer), whose duties shall be those usually performed by such officers. They shall be elected by ballot, and hold their several offices for one year or until their successors are elected and installed; blank ballots for this purpose to be mailed to every member by the General Manager.

ARTICLE IV.—The officers shall constitute an Advisory Board, which shall determine what action shall be taken by this Union, upon the application of any bee-keepers for defense, and cause such extra assessments to be made upon all the members as may become necessary for their defense.

ARTICLE V.—Any person may become a member by paying to the General Manager an Entrance Fee of ONE DOLLAR to the Defense Fund, and an annual fee of 25 cents, for which he shall receive a printed receipt making him a member of this Union, entitled to all its rights and benefits. The annual fee shall be due on the first day of July in each year, and must be paid within 30 days in order to retain membership in this Union.

ARTICLE VI.—Donations of any amount may be made at any time to the Defense Fund, in addition to the entrance and membership fees and the regular assessments made upon the members by the Advisory Board.

ARTICLE VII.—The Defense Fund shall be used for no other purpose than to defend and protect bee-keepers in their rights, after such cases are approved by the Advisory Board, and shall only be subjected to Drafts regularly made in writing by the Advisory Board.

ARTICLE VIII.—The annual fees paid by the members shall become a general fund, from which shall be paid the legitimate expenses of this Union, such as printing, postage, clerk-hire, etc.

ARTICLE IX.—Meetings of this Union shall be held at such times and places as shall be designated by the Advisory Board, or upon the written requisition of ten members.

ARTICLE X.—This constitution may be amended by a majority vote of all the members at any time.

CORRESPONDENCE

Explanatory.—The figures BEFORE the names indicate the number of years that the person has kept bees. Those AFTER, show the number of colonies the writer had in the previous spring and fall, or fall and spring, as the time of the year may require.

This mark \odot indicates that the apiarist is located near the centre of the State named: δ north of the centre; ϕ south; \odot east; \circ west; and this δ northeast; \circ northwest; Δ southeast; and ϕ southwest of the centre of the State mentioned.

For the American Bee Journal.

The Sheep-Bees Lawsuit, etc.

S. I. FREEBORN.

Since the publication of my article on page 346—relating to the bee and sheep suit—many want to know the particulars; some suggest that perhaps I have quarreled with my neighbor. They should not be expected to expend any great amount of sympathy until they are assured that they are not wasting it on one who is unworthy, quarrelsome, or a bad neighbor.

Perhaps the readers of the BEE JOURNAL will bear with me if I give a little personal history. My practical experience with bees dates back 30 years. I have lived in this place 28 years, and brought 20 colonies with me when I came. I have never had less than 20 colonies but once, and then they decreased from 230 to 19. So much for the box-hive period.

My stock for several years past has run from 200 to 300 colonies. I was the pioneer in the business in this county—that is, as a specialist—and was always referred to as the bee-man, the honey-man, etc. Many thought that I had a good thing in bees, and they have exaggerated as to my profits. Most of my neighbors have, at one time or another, tried their skill at bee-keeping, but with few exceptions they have quit in disgust. A great many think that I am in some way to blame for their failures, and say that I monopolize the business. They credit me with greater attainments than I credit myself with, for I have not been very successful in wintering bees, and I was ashamed to make so poor a report of wintering as I was obliged to give for the past winter.

In relation to this suit between my neighbor, Mr. A. J. Powers, the plaintiff, and myself, the defendant, I will say that I have had no quarrel with him, except in this matter, and I have fought shy of this suit, and told him that I did not wish to waste any money on it. I offered to leave it to referees, telling him that we might get some disinterested parties and let them investigate and decide for us. But he would not; he said that he wanted it decided whether I or he owned the farm on which he lives. If

I owned it he would move off and let me take possession; if he owned it he wanted the use of it. This is no new thing as far as theory or threats are concerned; it has been threatened for years, and more suits of the same nature are talked of, if this one goes to please the plaintiff.

I do not want the readers of the BEE JOURNAL to infer from the foregoing that I am poor, friendless or forlorn, and in a heathen land; for we have good people here, and a fair share of intelligence. I have many friends, and I can give as reference many of the best men in our county. If any one wishes for confirmation of what I have written, I am not afraid to have them write to Mr. Powers, himself, asking him whether I am a man of peace and truth.

In conclusion I will say that I have supposed that Mr. Powers has had some instigators, and was encouraged to commence this suit. His lawyers have told him that bees are stock, and that we would be obliged to restrain them as such. They know full well that if we are obliged to do this, it will be the death-blow to bee-keeping. I had resolved to fight this matter to the best of my ability, and I told my opponents that they could rest assured that it would be well contested through the courts of the State, if necessary. I feel that it is a case that every bee-keeper in America is interested in, and I think it not begging to ask them to assist in the defense, as Mr. Heddon suggests in his plan, which meets my entire approbation, and would, had I no suit of the kind on hand.

DISASTROUS RESULTS OF THE WINTER.

The past winter has proved one of great disaster and loss to the beekeepers of this county; probably one-half of the bees are dead, and those that are left make a poor average. My stock last fall consisted of three lots aggregating 340 colonies, 100 at my "Home Apiary," 150 at the "Sextonville Apiary" (about 5 miles south), and 90 at the "Neptune Apiary" (2 miles north). The colonies of the "Home" and "Sextonville" apiaries were chaff-packed, and the "Neptune" lot were wintered in a cellar. Of the "Home" lot, 18 poor ones are left; of the "Sextonville," 60 fair ones remain; and of the "Neptune" lot, 68 are alive, and I think can be made strong for basswood harvest.

This would seem to indicate that cellar wintering is preferable to chaff-packing; it has certainly proved so here during the past winter. In preparing those for cellar-wintering, we removed the honey-boards and placed burlap covers over the frames. Those to be chaff packed were covered in the same way, excepting a few which we covered with quilts. I think that the difference was in favor of the thicker quilts.

Having but 140 weak colonies left, and about 5,000 frames of comb, I have recently obtained 40 more colonies. My force now is 180. I am particular to give the number, as Dr. C. C. Miller and others desire to know what we are doing, and I, too,

like the idea. It is easy to explain the reason for the great mortality of bees during the past winter, for our bees stored no surplus honey after basswood bloom, and were light in bees; the winter was one of extreme severity, and was followed by a spring remarkable for cold and windy weather, and far advanced before weak colonies could build up.

Ithaca, ϕ Wis.

Popular Science Monthly.

Apiculture.

ALLEN FRINGLE.

Among the recent industries of rapid growth in this country, bee-culture stands prominent. Of course, as a homely art, bee-keeping is no modern industry, being as old as history; but in its scientific developments, it is of recent growth. In these times, when science is properly taking its place at the helm in all departments of human industry and activity, it is not strange that it is promptly assuming the guidance of bee-culture. This is a utilitarian as well as scientific age; and this is why bee-culture is being so rapidly developed, for its extraordinary growth is only in the ratio of its utility. Though known to commerce for 2,500 years, hitherto it has been followed and known, in this country at least, principally as a local industry. But bee-culture, from the soundest economic considerations, ought undoubtedly to become a great national industry fostered and protected by the State. Apiculture is naturally a part of, and closely allied with, agriculture, inasmuch as the nectar gathered by the one is immediately derived from the same fields and forests that yield the abundant ingatherings of the other. Indeed, the bulk of the honey crop of this country (which is, in round numbers, about 100,000,000 pounds annually) comes from the bee-keeping which is in connection, more or less, with farming.

But this is not the principal reason why bee-culture must take rank as an important national industry. The postulate is fully warranted by the following fact or facts: When the agriculturist takes his grain to market, he takes with it more or less of the fertility of the soil; when he takes his stock and dairy products to the market, he does the same thing, only, perhaps, in a less degree. But, when he takes his honey to market, he does nothing of this kind—he takes none of the fertile elements of his soil along with it. When the skilled apiarist, guided by science, so controls, directs, and manipulates his bees that they gather the rich nectar in tons from a given area, representing hundreds and even thousands of dollars, he impoverishes neither his own land nor that of his neighbor; he simply secures that which, if not gathered, "wastes its sweetness on the desert air." Likewise, when a country exports its surplus grain or stock, it also inevitably parts with more or less of its fundamental agricultural resources; but its exported honey surplus represents no corresponding impoverishment of soil. It would therefore seem clear that, from economic considerations alone, bee-culture ought to and must take its place among the most successful and important national industries.

There is also an aesthetic and hygienic side to apiculture, though in this practical and materialistic age mere sentiment must be subordinate to utility. But the more advanced scientific bee-keeping of to-day may, without assuming much license or latitude, be called "one of the fine arts." To the cultured and aesthetic devotee of art proper in the recesses of his own

studio, who has never practically studied the nature and habits of the wonderful little honey-bee, and manipulated it from day to day, this claim for our beloved art may excite a smile. Nevertheless, the apiarian devotee who has studied, observed, and handled the marvelous denizens of his hives, for twenty years, will affirm his art, no less than the flavor of the nectar it produces, to be indeed fine. Ladies of high culture and refined tastes are engaged (and successfully too) in bee-culture with all the enthusiasm which is naturally inspired by a congenial and ennobling pursuit; and this is the best proof of our contention as to its aesthetic status. Being withal a healthful occupation, bee-culture invitingly offers itself to those in delicate health and not strong enough for hard physical labor. In numerous instances such persons, by engaging in this pursuit, have not only procured liberal means of subsistence, but have also recovered lost health and strength. The capital required is comparatively small, while the average return for skilled exertion is large. Hardly any other legitimate business yields so large a return in dollars and cents for the amount invested and the work bestowed. True, bee-keeping has its formidable obstacles and serious drawbacks; but these, while sometimes troublesome to the scientific apiarist, are disastrous mostly to the unskillful or negligent, or the mere neophyte. And, even though the cargo of industry sink, not much treasure in money or labor is carried to the bottom, while a very little capital added to the valuable lesson of failure soon sets the redoubtable amateur on his feet again.

The honey-bee—which belongs to the general branch of the animal kingdom called Articulates, and to the class Insecta, and to the sub-class Hexapoda, and to the order Hymenoptera, and the family Apidae, and genus *Apis*, and species *Apis mellifica*—is one of the most intensely interesting studies in the whole domain of natural history. When the immortal Darwin had the scientific zeal and patience to study the apparent insignificant earthworm for forty long years, leaving a field untouched for thirty years for the purpose of studying and observing the habits of these despised creatures, how comparatively easy and pleasant to study the honey-bee, which is so much more useful and beautiful! The fact that the honey-bee is so much more serviceable to man than many others of the lower creatures whose nature and habits are equally wonderful, as the ant, for instance, invests it with a double interest to us. Insects which are pests, no matter how marvelous in structure and habit, we cannot study with that intense pleasure and interest we can those that yield so much to our physical as well as mental gratification.

Of the species, *Apis mellifica* there are many varieties—the principal of which are the Ligurian or Italian bee; the German or black bee; the Syrian bee; the Cyprian bee; the yellow, Egyptian bee; the amiable, Carniolan bee, of Africa; the superbly beautiful Dalmatian bee; the Smyrnanian bee, very popular in Austria; and the stingless bees of South America.

In this country (i. e., Canada and the United States) we have principally the German and Italian bees; but within the past five years the Syrian and Cyprian varieties have been extensively imported into this country. As the genus *Apis* is not indigenous to this continent, all now existing here have been introduced from the Eastern Hemisphere—first the black and Ligurian races, and latterly the Eastern varieties.

Each of the varieties in this country (vying for "survival" as the "fittest") has its distinguishing characteristics. So far, however, the Italians seem to possess more good points and desirable qualities

than any of the other races, and hence are the most numerous and popular among advanced apiarists. Their chief distinguishing qualities are superior amiability, industry, and what may be called patriotism, or indomitable energy in defending their homes against invaders, such as robber-bees and the "bee-moth"—against both of which they are quite invincible. While different strains of this variety vary considerably in color, they are in general distinguished by three beautiful yellow bands across the abdomen. They also have longer tongues than the German bees, by which they are enabled to sip the nectar from places inaccessible to their less favored competitors. A. J. Cook, Entomological Professor in the Michigan Agricultural College, who has done very much to advance scientific bee-culture in the United States, says on this point: "The tongue of the black worker, I have found, by repeated dissections and comparisons, made both by myself and by my pupils, is shorter than that of the Italian worker, and generally less hairy." In confirmation of this fact, established by Prof. Cook's dissections, I have frequently noticed my Italian bees, during a scarcity of honey from other sources, working upon the second bloom of the common red clover (not the *Trifolium pratense*, which the black bee can readily work upon), when the Germans were doing nothing on it, the flower tubes being too long for their tongues.

The black bees (or rather, German, for in point of fact they are not black in color, but a gray-black) have some desirable qualities, though they are now being rapidly superseded by the Italians. They produce nicer comb honey than the Italians, or perhaps any other race. The proverbial whiteness and finish of their comb are due mostly to the extra capping.

For the Syrian races of bees, leading apiarists claim some superior qualities. I am inclined to think that the Syrian queens (Palestine strain) crossed with the Italian drones, will presently prove to be our very best bees—combining more good points than any other variety. Doubtless, however, the bee of the future will be greatly superior to anything we have at present. For purposes of experimentation in developing such, we have now in America several of the best varieties in existence under domestication. By judicious crossing, in accordance with the well-known laws of variation and heredity, such a result is quite certain. The vast improvement made in this way among our domestic animals, within less than half a century, fully warrants the conclusion that, in the evolution of things so palpable everywhere, we may, in the case of our bees, subsidize and utilize the same ever-acting law of progress.

Following the Syrians, and genealogically closely allied to them, we have the Cyprians, though not yet widely diffused. They resemble the Italians, of which they are supposed to be the progenitors. The Cyprian bees have some good points, and one very bad point. They are famous for their fecundity, but equally infamous for their ferocity, being maliciously expert in using very pointed stings. The variety (unless in this insipid western atmosphere it requires more amiability) is not likely to become popular, notwithstanding the marvelous fecundity of the queens. It may be possible, by crossing with some bee of good disposition, to mollify their bad tempers and retain their good qualities.

Of the remaining varieties of the honey-bee, and sub-varieties, including hybrids, little is practically known in this country, with the exception of one or two strains of the latter. The "hybrids," resulting from a cross between the Italian queen and the German drone, are well known in Canada and the United States, and, next to the

pure Germans and Italians, are perhaps most numerous. These hybrids have excellent qualities; they make superb comb; are active and energetic; and I have observed that they stand the rigor of our Canadian winters much better than the pure Italians; but they are much less amiable.

A properly constituted colony of bees consists of three different kinds, viz., an impregnated queen (the fully developed female); drones (the males); and workers (undeveloped females). The queen (absurdly called the "king-bee" from the time of Aristotle, and even from Virgil down to Huber) is the mother of the whole colony, and is capable of laying over 3,000 eggs per day! During the height of the breeding season in the honey-flow, she frequently lays from two to three thousand eggs per day for many consecutive days together. She remains prolific from two to four years, and in some instances queens have been known to remain prolific upwards of five years. Before the queen-bee of a colony becomes quite barren, and while she is still laying, if not removed by the apiarist, the workers themselves supersede her, by killing her and rearing a young queen to take her place. Sometimes, however, the old, worn-out mother is permitted to remain in the hive while the young one is being reared, and ultimately dies of neglect and depression, or is assisted to "shuffle off" by her own unfilial progeny.

The queen is reared from the same egg as the worker, but in a much larger cell, nearly perpendicular, and on different food, called "royal jelly," which has the effect of fully developing the sexual apparatus. The time from the egg to the perfect queen emerged from the cell is about 16 days. In a few days after hatching, the young queen leaves the hive for her "bridal flight," during which, and on the wing, she meets the male bee or drone in copulation, and becomes impregnated, when she returns to the hive to remain there until she leads out the first swarm, which she does when she finds young queens being reared in the hive—one of them being designed to take her place. A single fertile queen in a colony is the normal condition of the household, and hence the old queen departs to make room for her successor. Second and third swarms are of course led out by the young queens. With the exception of sometimes attacking and destroying inchoate queens, the sole function of the queen is to deposit eggs and lead out the first swarm. After her impregnation she deposits both drone and worker eggs—either kind at pleasure. She is capable, however, as a virgin queen, of laying fertile drone, but not worker, eggs. This apparently anomalous fact (parthenogenesis) is now well established, but not only in the case of the virgin queen-bee, but in that of several other insects. Sometimes worker-bees in queenless colonies lay fertile drone eggs; but the queen is the only fully developed female in the colony.

The worker-bees, though "the bone and sinew" of the hive, are not blessed with the queen's longevity. In active work, on the wing and in the hive, during the honey season, they naturally live but a few weeks—from one to two months—while those hatched in the fall will live until spring, sometimes reaching the age of nine months and upward, which is the maximum longevity of the worker-bee. In passing from the egg to the perfect bee, the worker occupies 21 days. The young worker spends several days (from 10 to 15) at home building comb, attending to the young brood, receiving and depositing the loads of the outside workers, and sundry other little duties, before it ventures to the fields to work. The duties of the older workers of the colony are to gather honey, pollen, and propolis, destroy and

cast out the drones when necessary, and defend the colony from enemies without or within. They also, as already noticed, destroy old, unprolific queens and rear young ones to take their places, and sometimes lead out in swarming, as the queen does not always take the lead in swarming. And although very young bees are ordinarily very reluctant to leave the hive, I have seen such rush out under the swarming impulse so young that they could not fly more than a foot or two, if at all. They usually crawl back home again in apparent disgust with the outside world, and doubtless with more wisdom and less conceit.

The third and last rightful denizen of a perfect colony of the bees is the unsophisticated, stingless, but much abused drone—the male bee. He is well named, however, being a very liberal feeder with excellent digestive organs for honey, and with no duties whatever within the hive further than the incidental one of contributing by the presence of his cumbrous corporation to the animal heat of the hive. As to his natural longevity, nobody from Virgil to Huber, Langstroth, Quinby, Newman, Cook, Jones, et alii, seems to know much about it. The matter not being invested with any importance, no investigator seems to have bothered his head much with it. So far as I could ever see, the drone seems to live and thrive admirably until he is either killed off by the workers, starved to death, or gallantly yields up his life in performing his sole function, which he invariably does in the performance of this function in the act of copulation. The drone, as Dr. Dzierzon established, comes from an unimpregnated egg—the virgin queen, and sometimes even workers, being able to lay eggs which will produce drones. As a rule, drones are found in colonies whenever they are needed, or likely to be needed to impregnate the young queens, which is usually during the swarming season and honey harvest. Though they are promptly ejected from strong colonies when not needed, and the honey-flow fails, they are tolerated in queenless colonies, and are sometimes wintered over. The drone is much larger than the worker, and his cell is very protuberant, and in it he spends 24 days from the egg before he emerges.

As remarked at the outset, bee-culture made but little progress on scientific principles for thousands of years. It is only within the last half century or so that it has, under the magic talisman of science, fairly leaped forward like every other pursuit. The first great achievement was the application of the centrifugal force in the construction of the honey-extractor, thus enabling us to get the honey in its purity out of the comb without injuring the latter, when it can be returned to the bees to be refilled. A German (Herr Von Hruschka) accomplished this, and thereby gave a great impetus to bee-culture. Indeed, the invention of the movable frame and the honey extractor completely revolutionized the modus operandi of bee-keeping. As to who is really entitled to the credit of inventing the movable frame, there is some uncertainty, and a conflict of claims. The truth seems to be that some three or four different persons are fairly entitled to credit—each, it would appear, having conceived and developed the idea, more or less independently of the others. Huber and Schmidt in Germany, Munn in England, M. de Beauvoys in France, and Langstroth in the United States, are all fairly, though not equally entitled to credit, and each has placed progressive bee-culture under tribute. Mr. Langstroth, however, seems entitled to much more credit than any of the others, for his hive had more practical value than the whole of the others together. In carrying out the common principle, Langstroth was undoubtedly far ahead.

The next stride in advance was the invention of the manufacture of "comb foundation," which was a great desideratum, as the honey season in the temperate zone is comparatively short, and a new colony of bees supplied with the "comb foundation" will do as much in two or three days as one alongside of it, without the foundation, will do in eight or ten days, as the writer has repeatedly proved. Foundation comb is made by pressing sheets of pure beeswax between metal rollers or plates so constructed as to give to the wax the exact impressions of the cells in the basal wall of the natural comb. This saves the worker bees just that much labor and time, and they proceed at once to rapidly draw out and develop the incipient cells. The merit of this invention is also somewhat in dispute. Upward of 20 years ago the late eminent apiarist, S. Wagner, patented comb foundation in the United States; but it soon transpired that Herr Mehling, in Germany, had previously made foundation, and that the Germans had been using it for three or four years. As it is the accumulated wit and experience of the age, rather than the man, that produces the invention, it is quite likely that Mr. Wagner arrived at the idea without the aid of the other German (for Mr. Wagner was himself a German). Montaigne said that he "had as clear a right to think Plato's thoughts as Plato himself had;" and the American German had not only as good a right as the home Teuton to think out this invention, but he was just as likely to do so, and more likely, for the inspiring and inventive Yankee atmosphere would soon quicken his blood and sharpen his wits.

Recent bee-culture has been also greatly promoted and extended by the specialty of queen-rearing, which has been brought to great perfection on scientific principles. D. A. Jones, in Canada, and Henry Alley in the United States, have developed the department of apiculture to an extent leaving one would think, little to be further achieved or desired. As, however, under the progressive laws of evolution, we have ceased to set bounds to improvement in anything not fixed mathematically, we will not say that any department of practical apiculture is yet fully wrought out to perfection.

In order to secure absolute purity of fertilization in the different varieties and sub-varieties in crossing, D. A. Jones, of Beeton, Ont., has established queen-nurseries on some islands in the Georgian Bay, so far from shore and from each other so as to secure entire purity of blood in copulation. Queens and drones bred and mated under such circumstances, from pure imported stock, cannot be otherwise than pure.

Henry Alley also, of Wenham, Mass., has, through a long series of experiments during many years, successfully applied science to the modus operandi of queen-rearing, and has recently given the world the fruits of his labors and researches in a work entitled "The Bee-Keeper's Handy-Book; or, Twenty-Two Years' Experience in Queen-Rearing."

Another feature of present bee-culture, which is at once both largely the cause of its present advanced condition in this country, and the best proof of its wide extension, is its periodical literature. Devoted wholly, or partially to apiculture, we now have no less than three or four papers in Canada, and nearly a dozen in the United States. Among the latter is one weekly devoted exclusively to bee-culture. This is the AMERICAN BEE JOURNAL, published in Chicago by Thos. G. Newman. Among the former is the "Canadian Bee Journal," a weekly, just commenced under the most favorable and promising auspices. It is edited and published by D. A. Jones, of Beeton, Ont.

Since the hitherto great difficulty of successfully wintering bees in these climates has been nearly overcome by the application of science, bee-culture must, in the near future, become a great and profitable national industry in Canada and the United States.

[The foregoing article by Mr. Allen Pringle, copied from the "Popular Science Monthly," is quite interesting (as are all of Mr. P's articles), but the paragraph concerning bee-literature has created something of a breeze among our cotemporaries. A full explanation of THAT will be found on page 387.—Ed.]

For the American Bee Journal.

Bee-Keeping Classes—Wintering.

J. W. BAYARD.

Every bee-master in the land is inclined to select from his own standpoint, the methods that look best suited for himself and his surroundings; and whilst many fail, many more will succeed, clearly demonstrating that we always have some master spirit among us. After all, we are more or less governed by the rigors of the climate into which civilization has forced the honey-bee, and we are compelled to provide for its comfort and safety, in doing which we naturally divide into classes, as follows:

1. Those who winter bees in repositories or in-doors.
2. Those who winter bees in open fields with ample protection.
3. Those who winter bees on the summer stands without protection.
4. The slipshod ones who dump their colonies into the fence-corners, among the briars, jimson and burdock, invoking the goddess of luck to help them out. Notwithstanding their reprehensible methods, they will always have a few bees, for the simple reason that nature has certain immutable laws that never perish. It is not entirely clear that those who choose the "ragged edge," by wintering their bees unprotected from year to year, on the summer stands, are in the true line of economy, though they have precedents historically running back to the days of Samson, who obtained his honey from the carcass of a dead lion.

Scoffers have always regarded this simple bit of biblical history as mythical or impractical, when a simple illustration should settle the whole question. Imagine, if you please, the grand old monarch of all the animals of both field and forest, marching with stately tread in pursuit of mutton; being very hungry and thirsty, and finding it not, he takes an overdose of pollen, falls mortally sick, and in due time becomes a royal palace for the honey-bee.

Mark Twain, or some other traveler, tells us that in a country with high temperature and arid climate, like that of Palestine, dead animals are slow to decompose; whilst certain enterprising insects speedily excavate the carcass, leaving the hide and skeleton intact. Now, Mrs. Samson's

bees having swarmed, and finding a genial home and a safe place in which to hibernate, in the carcass of the lion that her husband had slain, they simply did what Cyprians and Syrians always do—pitch in and make themselves at home.

OUT-DOOR WINTERING WITH PROTECTION.

One conspicuous advantage in outdoor wintering is found in the occasional favorable changes of weather that occur during winter, inviting the bees to a cleansing flight, with the opportunity of carrying out many of the dead from the hive.

Every experienced bee-master will concede the superiority of woolen blankets or felt cloth as a covering over the frames. If a cushion is preferred, then fill it with woolen bats, and you will have something that you will never exchange for anything else.

For packing, there is nothing like clean, bright straw; being a non-conductor of heat it is vastly superior to leaves, fodder, husks, or anything else that I have ever tried. I had about as soon spread a sheet of lead over my bees, as cloth made from flax, hemp or jute, as they hold the moisture instead of passing it off; thus causing consequent death rather than protection.

IN-DOOR WINTERING.

As to in-door or cellar wintering, I have had little experience, and can advise only from facts and theories. I take great pleasure in referring to eminent bee-masters, such as Rev. E. L. Briggs, Rev. O. Clute, Mr. George Grimm, and Mr. H. R. Boardman. If I had a repository that was faulty, or if I had determined to build a new one, the very first thing that I would do would be to draw on the patriotism of any one or all of the above-named gentlemen, for an exact model in detail, of their cellar or repository, as well as the exact detail of the manner of manipulation, or condition of the colonies when placed in for winter. With repositories thus secured that will winter bees with a loss of only 2 per cent., the climax is reached, and we may not fret any longer about death in the hive or unsuccessful wintering.

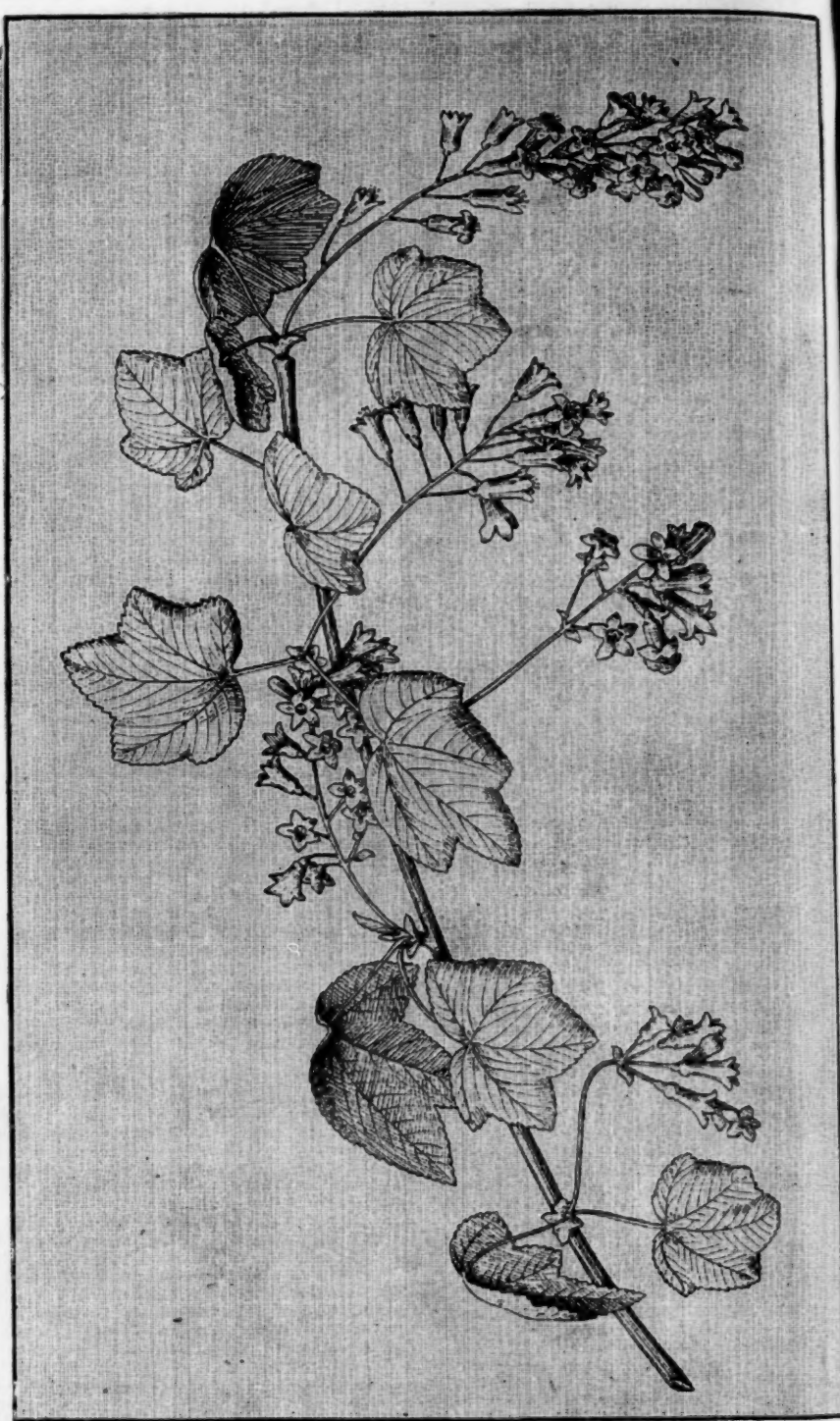
Athens, O. Ohio.

For the American Bee Journal.

Wild Gooseberries and Currants.

W. A. PRYAL.

In January, when the willow is in bloom, another family of California wild-flowers enjoy with the willow many a pleasant and grateful visit from the bees. Commencing in the latter part of the first month of the year, and extending into February, the wild gooseberries, arrayed in all their thorns and a scanty supply of leaves, commence to open their insignificant flowers, which, however, to the bees, seem to have a charm, for they dive deep and long into each one. There are some three varieties to be



WILD CURRANT OF CALIFORNIA.

found in this State, but we have never seen many, growing in one locality.

The wild currants, which are as pretty a flower as one could wish to see, comes into bloom a little later than the gooseberries, and their rose-red, many-flowered, drooping racemes are eagerly sought after by the bees on favorable California winter days.

These plants, too, are not very numerous, but they, together with the first described, are entitled to be classed with our earliest spring (winter, Eastern folks will say) bee-flora.

The wild currant here shown is botanically known as *Ribes sanguineum*, and is fit to adorn any garden or grace any bouquet.

North Temescal, Cal.

For the American Bee Journal.

Prime Causes of Bee-Diarrhea, etc.

JAMES HEDDON.

I would thank Mr. Stewart for his kind words on page 343; I must also insist that he is mistaken. Most assuredly I have and always shall own up to every mistake.

I have a hard time to get my opponents clear, upon the pollen theory. My admission is that cold will kill bees entirely independent of diarrhea. This has nothing to do with the pollen theory. That theory has to do with the cause of bee-diarrhea, not bee-death. Bee-bread is always pollen, but pollen is not always bee-bread. We get all mixed up. How are we to account for the following facts: 1. Bees winter nicely in very damp, moldy places.

2. They sometimes have diarrhea in a high temperature.

3. All diarrhetic excreta is mainly pollen.

4. They come through the winter in nice condition, with almost no air at all.

5. They die of diarrhea, in dry repositories, with the best of ventilation.

6. They can be wintered successfully with only sugar syrup in the hives in the same repository where four-fifths die on natural stores. They can, on this food (with no pollen in any form), be confined for five months and accumulate no perceptible fecal matter.

Even if the dry-feces theory were true, pollen is still the prime cause of bee-diarrhea; but only in letter, not in spirit. Should that theory prove true, I will admit that bees can be wintered safely with not only bee-bread in the combs, but honey replete with floating pollen; and that all this long discussion upon the pollen theory, and the costly experiments made, have amounted to, is, that I can now winter my bees with certainty, and so can all who will feed sugar syrup and keep the temperature up to a proper degree; and if the confinement is seven months, success is just as certain. We have the problem mastered.

Mr. S. A. Shuck's fifth paragraph, page 362, proves that neither cold nor confinement is the prime cause of bee-diarrhea. He can produce it, in a few hours in summer, with the temperature about 60°, by feeding diluted honey or sugar syrup. I know that he speaks truly. This shows the error of Mr. Stewart, and the truth of the pollen theory. I have seen bees fed diluted or thin sugar syrup nearly all winter, in a cellar of a temperature of about 40°, and no diarrhea. I know of a bee-keeper who fed nearly 100 colonies thin sugar syrup so late that hardly any of it was capped over. He then placed them in a damp cellar, and they wintered nicely. (If you wish to get right, you must not ignore these facts.)

Now, why this fecal accumulation, of which Mr. Shuck speaks, produced in a few hours in summer? Let the

pollen theory answer: Bees in summer are, from their continual activity, all the time wasting tissue and partaking of nitrogen (bee-bread) to replace it. Such consumption demands very frequent discharges. A few hours' confinement loads the intestines. If the dry-feces theory is true, why do not Mr. Shuck's bees void dry feces in their hives, and thus avoid distension? They are warm enough, and dry enough to suit the demands of those who believe in the dry-feces theory, are they not?

The diluted syrup which Mr. Shuck proposes to feed, while it distends the honey-sac, it adds not one particle to the fecal accumulation. If Mr. Shuck will remove all pollen (in every form) from his hive, place the bees in a cellar of 45° temperature, and in 48 hours give them a cleansing flight, then put them back after getting all nitrogen out of them and their combs, he may then place them in a temperature of 55° or 60°, and try his diluted-syrup-feeding experiment, and he will fail to produce fecal accumulations. A watery discharge, slightly colored by waste tissue, is not bee-diarrhea, nor a cause of sickness and death. I have examined this phenomenon carefully.

MODERN TRANSFERRING.

On page 364, Mr. S. Daniels says that he is in trouble with the "New method of transferring." How easily we can err. He errs in saying, "They say;" for Heddon does not, and did not say, "Any time when the bees are on the wing;" if he did he erred. No, I guess Prof. Cook erred this time. We are all a part of "Nature's imperfections," so ably and amply proven recently by Mr. Pringle, and we must cultivate charity for each other's mistakes. Our objects are good.

Mr. Daniels says that he agrees with Mr. Clute, "If the drumming is thorough, there will be no bees left to care for the brood." As Mr. D. asks for a minute description of my method, I will refer him to page 367 of the BEE JOURNAL for 1883. There I nowhere use the word "thorough;" I say, "I drive the old queen and a majority of the bees." At the very head of the directions I say, "About swarming time." I call this driven one a "forced swarm." Did Mr. Daniels and Mr. Clute never make colonies by division? Did they never form nuclei? Could they be reckless enough to drive all the bees from the brood and set it aside to perish because Heddon or Prof. Cook were understood to so direct?

Sure enough the Professor does carry the wrong idea. Mr. Clute and Mr. Daniels must have taken his directions, not mine. This shows the difference between writing from actual experience and theory or literary knowledge. It is something like my writing about foul brood; or a native of the far South, about bee-diarrhea. Ah, I see that Mr. Clute does not speak of his personal experience, but that of a neighbor novice. Prof. Cook did not get my idea, and Mr. Daniels and Mr. Clute's neighbor took their

from him, no doubt. I believe that none who have worked from my article on page 367 (1883), have failed. Dowagiac, 9 Mich.

The Strength of Insects.

Mr. Robt. Corbett, of Manhattan, Kans., sends us the following article, taken from the *New York Sun*, which, doubtless, will be interesting to many:

"If you want to see muscle," a naturalist said, "take a glance through this glass," pointing to a seat before a powerful microscope. The drop of Croton water was fairly alive with little round or oval bodies. There was nothing specially remarkable about them; but soon a wonderful creature rolled upon the scene from a different part of the drop. In appearance it resembled a crystal bell. The edges were ornamented with a delicate fringe, and the entire mass was as transparent as glass. The mouth of the bell was evidently the mouth of the animal, because the observer saw it rush along like a scoop and, turning down, fasten its edges to the bottom, as if to secure some minute animal that was resisting, and a second later some object could be seen passing up into the body.

"If you had the strength of that animal," the naturalist said, "in proportion to you size, you could take Trinity church by its steeple and toss it over into New Jersey. There are animals in this drop that we cannot see with this powerful glass. Suppose there was this same difference in size among the higher animals; elephants would be as large as the State of Rhode Island. If this bell animal was as much larger than man, as it is than these little creatures it is eating, we would see a gigantic scoop of jelly larger than the Forty-second Street reservoir coming down on us, whirling in the water and causing such a suction that a regiment of men would, if in the water, be hurled and twisted, and then encompassed by it. The strength of the creature can be imagined when it is known that the smallest section of the finest hair that could be cut seemed like a mountain beside it; yet the microscopic creature moved the end of an entire hair placed over the glass. In moving about it threw aside bits of algae and mud. That could be compared to the act of a single man striking down one of the giant trees of California, or kicking over a block of houses. I am devising an instrument to measure the power of these microscopic giants. You see, among the lot, there are always a number that seem, from no special cause, to be in great terror, rushing about wildly, stopping at nothing, passing through masses of weeds and mud in direct lines. Now, the force with which they bring up against a barrier is certainly the maximum of their strength; so I arranged a machine after the plan of one that I have seen to measure the velocity of a shot, the latter striking a frame, and the force of the blow

being recorded on a scale. For my partition I took what was evidently the egg-shell or cover of some microscopic animal. I attached it by one end to a larger body, and the whole thing stood over a delicate scale that was cut in the glass slide, and as the animals rushed along they struck the partition or hand and pulled it around the scale."

"What was the result?"

"Well, to tell the truth, the first one that came along broke down the partition, and I have not yet been able to adjust it again. I have in hand another instrument, with which I intend to measure the movements of the wings and legs of insects per minute and second, and I think they can be photographed as well as the feet of a trotter while in motion. This will be fine work, as with a simple instrument I have shown that the wings of a common house-fly move more than 200 times per second, and the machine lost more than half the vibrations. I have watched a fly for five minutes hanging almost in one spot under a chandelier, kept up by the continuous movements of its wings, and estimated that the operation required over 100,000 beats of the wings, or over 400 a second, or 800 simple oscillations; and the house-fly is not as lively as some others of the tribe. I have, in following bees to find their nest, found that they are on the wing 30 minutes in 45, the allowance being for the time in which they were on flowers, and during that period they must have beat their wings 342,000 times. A spider can bind a fly securely, winding 20 or 30 cables of silk about it, in less than a second and a half. These rapid movements show the wonderful physical power of small animals. Here are some contrivances to measure the strength of beetles and large insects."

One was a long box sanded on the bottom, with glass sides. At the end was a small friction wheel, over which ran a silken thread. On one end was attached a tissue paper receptacle for weights, and the other was tied in a slip-noose. A large black ant was taken from a flask, the noose caught around its body, and on being released, rushed away up the miniature street, hoisting the scales and three grains of corn with the greatest ease. A small red ant was then brought out, and, after several false starts, and showing evidence of a decidedly mulish disposition, it ran off, hoisting a very heavy pea.

"An ant can carry a weight about 75 times its own," the naturalist said. "If you had the muscle of one of these little creatures, in proportion to your size, you could lift about 11,000 pounds."

✂ The Cortland Union Bee-Keepers' Association will hold a basket picnic at the apiary of Mr. Miles Morton, at Groton, N. Y., on Tuesday, Aug. 18, 1885. All bee-keepers, with their families, are cordially invited to be present.
W. H. BEACH, Sec.

✂ The Bee-Keepers' Association of Central Illinois will meet at Bloomington, Ills., on July 15, 1885, at 10 a. m.
WM. B. LAWRENCE, Sec.

Prairie Farmer.

Suggestions for the Season.

MRS. L. HARRISON.

I have just been working in the apiary, and I find that bees are not increasing in numbers as fast as is desirable at this time of year. The first swarm of the season issued on May 21. It is very dry in this locality, and what fruit-bloom there was yielded but little nectar. Many colonies were lost by "spring dwindling" during May; some labeled "good" a few weeks ago, have all gone visiting and have forgotten to return.

The loss of bees during the past winter was very great. An apiarist told me lately that in an adjoining township to the one in which he lived, there were 145 colonies last autumn, and now there is but one. There is demand for bees at present, and probably will be for a year or more. The larvae of moths are now appearing, and all combs from which bees have died, should be examined. These lubberly objects are great cowards, and revel in darkness and quiet; when a comb is removed from a hive, they are alarmed, stick out their heads, and may be readily discovered. It takes warmth to develop these larvae, and if only half the requisite number of combs are kept in a hive, and so doubling the distance between them, they will not be infested early in the season; or if hung in a light, airy room about three inches apart, they can be preserved until another season.

Italian bees often swarm without having constructed queen-cells. I have examined a colony from which the swarm had issued, for the purpose of saving all the queen-cells. The colony may intend to swarm several times, but if a long continued rain occurs, and a queen emerges, she will make it her first duty to destroy all rivals; if the weather is fine, and an after-swarm issues, the new queen will leave with it, the remaining cells being unharmed. Bees protect the cells according to their intentions with reference to the issue of after-swarms. I have seen swarms no larger than an apple, when clustered; such are of no value when left to themselves, but if strengthened with emerging brood, the young queen may prove valuable, and soon make a good, prosperous colony.

When combs containing brood and bees are removed from a colony for the purpose of forming a nucleus, all the bees except the very young will return to their queen. But when a colony has queen-cells and no queen, if a comb is removed with bees and a queen-cell, more of the bees will remain. I took frames of brood containing bees and queen-cells, and formed nuclei. When the young queens become fertile, I will either build them up into strong colonies, or introduce them to queenless colonies. The prosperity of a colony depends upon its queen, hence queens should be reared from the very best colonies. In all apiaries of any size, some colo-

nies will be found more populous than the others; others again excel in honey-gathering, and queens should be reared from those containing the best traits. All queenless bees will immediately construct queen-cells, when furnished eggs, or larvae not over three days old, and these should be supplied from the best colonies.

Peoria, Ills.

For the American Bee Journal.

Half-Pound Packages of Bees.

MAHALA B. CHADDOCK.

Some fear that a half-pound of bees is not enough to build up a colony with, when put on the combs of honey where the bees have died. I want to say that a half-pound of bees is plenty to start with, as they will keep the moths out of the combs, and will soon grow into a colony. How do I know? I know from experience.

A neighbor of mine sent for three half-pound packages of bees with a dollar queen in each; I clipped the queens' wings and helped put them into the hives; ten days later I examined them and they had four frames full of eggs and young brood in all stages; enough to fill one whole frame being capped over. Two of the hives had each four frames full, and the other one had three pretty well filled.

The bees were put in on May 27, and the weather was very warm the following week. If they should be put in during a cool week, such as we sometimes have in summer, they would not breed up so fast, but in good summer weather they will do it. I wish now that I had sent for more half-pound packages of bees, instead of rendering my old combs into wax.

Vermont, Ills.

For the American Bee Journal.

Thousands for Defense.

W. H. STEWART.

I have read with much interest both the editorial notes, and the articles by Messrs. Freeborn and Heddon, on page 346, and I must say that if I were now to hold my peace in regard to the matter which those articles set before the bee-keepers of the land, I would, as Mr. Heddon says, be guilty of "the sin of omission." I am well acquainted with Mr. Freeborn, the defendant in the extraordinary suit in question.

Both Mr. Freeborn and myself came to this county (Richland) in an early day. We were among the first settlers, and we have been neighbors for many years. Mr. F. has been engaged in the nursery business in connection with bee-keeping, and his traffic in fruit-trees all over Wisconsin and the adjoining States has made known his integrity and prompt business character to thousands of farmers and other business men, as well as hundreds of bee-keepers. He attends strictly and thoroughly to his own

business; lives in peace with all men as far as is in his power; and has had no trouble with his neighbors, except from a few ignorant farmers who claim that his bees damage their clover, buckwheat and fruit crops.

Mr. Editor, you say in your note on page 339, "We call for a halt in such a 'career of madness.'" That expresses my mind exactly. If need be let all other subjects on bee-keeping give place in the BEE JOURNAL, to this matter, until we know whether one has a legal right to keep bees in the United States. Let every one of the 500,000 bee-keepers of America be heard, if they write no more than to say, "Count me in as a member of the Defense Organization;" and let the fee be promptly sent with each name. Let us pile up the dollars by the thousands, for mutual defense, and give the world to understand that, if need be, we can employ the ablest lawyers in America to defend us in our chosen pursuit.

I second Mr. Heddon's motion, that Mr. T. G. Newman be chosen as our secretary-treasurer and general manager. Bee-keepers, one and all, will send in their names at once! "and don't you forget it!"

Orion, 9 Wis.

SELECTIONS FROM OUR LETTER BOX

Gathering Honey Rapidly.—J. H. Andre, Lockwood, N. Y., on June 15, says:

White clover, for years the latest in blossoming, is here at last, but the bees are giving it the go-by for the more tempting nectar of the red raspberry. In all of my 25 years' experience with bees, I do not recollect a season when bees gathered stores as fast as at the present time. In some surplus boxes foundation has been drawn out half an inch on each side in 3 days, and they keep it chock-full of honey as fast as it is built.

Large Honey Crop Expected.—B. F. Baldwin, Marion, Ind., on June 12, 1885, says:

I put 43 colonies of bees into winter quarters, and all came through the winter in good condition, except one that starved, one that was queenless, and one that had a drone-laying queen. I sold one colony, and now I have 39 strong ones left, some of which I am unable to lift. The prospect for a large honey crop in this section is better than it has been for years.

A Lace-Winged Insect.—G. W. Ashby, Valley Station, Ky., says:

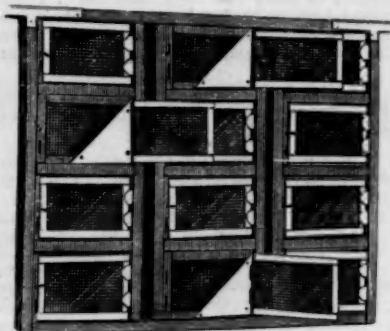
I send an insect which I found in a box-hive when I was transferring. Will Prof. Cook please tell what it is? and whether it lives on honey or on bees?

[This is a common lace-wing of the genus *Chaniodes*. It is too much crushed to be identified. These insects are common all over the United States. It neither cares for honey nor bees, and must have entered the hive just for curiosity, which was doubtless satisfied.—A. J. Cook.]

Queen-Nurseries.—A subscriber from Canada writes as follows concerning queen-nurseries:

At the Toronto Fair I saw queen-nurseries, i. e., a lot of metallic queen-cages in a frame the same size as a brood-frame; but I do not understand their use. Will you please describe them in the BEE JOURNAL, as I wish to learn all I can about queen-rearing.

[The queen-nurseries referred to were those invented by Dr. Jewell Davis, for rearing queens for the purpose of Italianizing an apiary. Put into the cages of the nursery, between the tins, a few cells of sealed honey, in new comb if possible. Then cut from the combs of a pure Italian colony as many queen cells, large and well developed, as you have prepared cages with the honey, as above. Suspend one of the cells in each of the cages. Care should be



QUEEN NURSERY.

taken to have the best cells, and not to allow them to become injured by bruising, handling or jarring. Having thus supplied each cage of the nursery with a queen-cell and food—the food is thus supplied that the young queens may not starve if the bees do not feed them, a thing they often fail to do when there is a scarcity of honey in the flowers—the nursery cages so prepared are adjusted in the nursery-frame; then having removed a centre comb from a strong colony, the queen-nursery may be placed into the vacancy made by the removal of the comb, there to remain until the queens are hatched, which will be in 3 or 4 days, if the cells were not cut from the combs too early, or before the ninth day. When the queens have emerged from the cells, remove the cage and introduce the caged queen to a black colony, liberating her on the next day about sundown; if necessary, spraying the bees with perfumed water with an atomizer.—Ed.]

Bees Under the Snow.—Chas. Mitchell, Molesworth, Ont., on June 15, 1885, writes as follows:

Mr. Doolittle's statement and mine must be most confusing to beginners. Mr. W. F. Clarke visited me lately, and I showed him the first and only colony that I have lost in 6 years. My two rows of hives next to the fence are generally under 5 feet of snow; the stands being 6 inches high and large enough to place on a packing-box without a bottom, and with a movable lid. My bees being packed in boxes is why they do not smother with full summer entrance open. I have concluded to place

most of my bees next to the fence this fall, as no such even temperature can be had outside as we get under the snow. I am very careful to not even go inside of the yard during winter, and more so if the snow is crusted. Mr. Clarke would prefer his bees above the snow-line, but with me it just goes to the snow-line, but down instead of up. My bees were about equal on shallow frames and deep ones, and my success was 300 per cent. in favor of shallow frames. My bees have died badly this spring, the cause of which I lay at the door of cold and moisture. I think Mr. Doolittle need not worry about his schooling, as he possesses something few colleges in America can give on his calling. I have been in favor of out-door wintering, but from the past cold winter I have concluded to build a proper house, as out-door packing in such winters does not keep the bees warm enough to steer clear of bee-diarrhea. Can it be possible that Mr. D. packs his bees, or is our snow in Ontario more porous?

Defense Fund.—J. C. Wilson, Ridge-land, S. C., on June 13, 1885, says:

I think well of Mr. Heddon's plan suggested on page 346, to raise a "defense fund," and I also name Thos. G. Newman as my choice for secretary-treasurer and general manager of the good work. In my opinion nothing can elevate our calling more than to band ourselves together as a fraternity. We all realize the force of the old adage, "in unity there is strength."

Bees Under Snow in Winter.—O. O. Poppleton, Williamstown, Iowa, on June 12, 1885, writes as follows:

On page 357, Mr. Doolittle asks how far hives were from the ground in which bees have been successfully wintered under snow. My hives are from 2 to 4 inches above the ground, and I cannot think that Mr. House is correct in his opinion, for two reasons. Close setting to the ground has been no detriment to my bees, and I do not think that the snow does thaw frost out of the ground; at least it does not work that way up here in Northern Iowa. During the winter of 1880-81, about 50 of my colonies were entirely buried under the snow for at least two months, and I never had bees winter better. During the winter of 1882-83, a part of my bees were where the snow was blown almost entirely away from the hives, and this part of the apiary suffered much more severely than did those so situated that the snow was piled over and around the hives. I cannot account for Mr. Doolittle's non-success in wintering bees under snow, unless it may be that his method of packing leaves no large air-space around and above the chaff-cushions inside the hive or packing-case, as my hives do.

Rapid Honey Gathering.—J. W. Eckman, Richmond, Tex., on June 12, 1885, says:

Bees are just booming. Three weeks ago I had to work hard to keep young swarms, and some old ones, from starving; last week I had to work harder to give them room in which to store honey. I have never seen hives fill up so fast. My best colony, on June 3, gathered 24 lbs. of honey; on June 4, 22½ lbs.; on June 6, 29 lbs.; on June 7, 29 lbs.; and 8 days previous to June 3, I had to feed it to keep it from starving. The spring was wet and cold, and thus kept back swarming until March 6. They stopped swarming about the middle of April. From May 1 until linden and horse-mint blooms there is nothing for them to gather, and we have to watch them closely as they consume all gathered in early spring. I am busy now extracting, and finer honey I never have seen.

Not One Colony Left.—Isaac Darling, Steuben, 3 Ohio, on June 15, writes thus:

I lost all my bees last winter. They were in double-walled hives with an inch air-space all around, and each colony had plenty of good fall honey. In the future I will put my bees in the cellar, or some suitable place. No more out-door wintering for me in this locality.

Wintering Bees Under Snow.—Jas. McNeill, Hudson, N. Y., on June 15, 1885, writes:

As Mr. Doolittle wishes those to report who winter their bees on the summer stands close to the ground, where they are likely to be covered with snow, I would say that I winter all my bees on the summer stands, the bottoms of the frames being about 4 inches from the ground. I allow the snow to lie about the hives, and prefer to have them partially buried in it. My experience extends through 5 winters, and I have met with my first loss during the past winter. In my home apiary of 117 colonies, 16 were lost—all from starvation, without a trace of diarrhea, and 14 had not a particle of honey in any part of the hive. In my out apiary there was a row of hives standing along a fence which was completely covered with a snow drift for the greater part of the winter. I found the chaff above the cluster almost rotten from dampness, which had accumulated during the winter, and which the snow had prevented the sun and wind from drying out. As I have always laid much stress on having a winter protector open enough at the top so that the sun and wind might keep the chaff dry above the cluster, I was somewhat concerned about these bees which showed such an accumulation of moisture in the chaff, but they came through in better condition than the rest of the apiary, only one being lost out of 17.

Wax-Extractors.—C. H. Dibbern, Milan, Ill., writes as follows:

A few years ago I made a wax-extractor, and I was at first delighted with it. After using it a few times and comparing the quality of the wax produced, with some that I had previously secured by boiling, my enthusiasm cooled very perceptibly. I found that while I could get as much wax with the extractor, the color when melting old black comb was 3 or 4 shades darker. Of course in rendering cappings or pieces of white comb there would be no particular difference. My extractor was so constructed that the wax in the comb would be melted by steam and then run off into a pan to cool; but a great deal of black water would run in with the wax, and to this I attributed the darker color. There may be wax-extractors not open to this objection, and if so I would like to know it. I have noticed the dark appearance of a good deal of the wax in the market, and those that have bought foundation for brood-frames, have probably noticed that it is usually not of a golden hue. Is not a good deal of this due to the wax-extractors?

Moving Bees, etc.—Geo W. Morris, Cornishville, Ky., on June 11, 1885, writes thus:

As I have moved my apiary successfully four times, I will describe my method of preparing and hauling bees: Secure the services of two of the most efficient bee-masters in the neighborhood to assist you; then with smoker, nails, tacks and hammers proceed to nail the frames at both ends with three-penny nails. Next nail the top-story and fasten the covers; this had better be done with six-penny nails. By the way, if the hives need any repairing, now is a good time to attend to

it, while the bees are under control, and you have plenty of help. Take quilting or wire-cloth, either will do, cut it the proper size to cover the porticos, and tack it on with three-ounce tacks, when the bees are all in their hives. Get a two-horse wagon with a long, deep frame, tramp in straw at least one foot deep, place the hives so the combs will run lengthwise of the wagon, and steady them by cramming bunches of straw between them. When you arrive at the destination, unload, liberate the bees, and place one or two boards upright in front of each hive to cause the bees to mark their new location, and all will be well. In this way I have moved 17 colonies, 6 empty hives and an extractor, all in one load, and a distance of 25 miles. The above method is for two-story Langstroth hives with porticos. Without porticos the ventilation would be insufficient. The prospect now is that there will be no surplus honey in this county (Mercer) this season on account of too much cold weather last winter, and too much dry weather now, I think. I have handled bees for 7 years, and I believe that this is the poorest season for bees and honey in all that time. So far I have not heard of a single swarm.

Shade for Bee-Hives, etc.—George Poindexter, Kenney, Ill., on June 9, 1885, writes as follows:

I began the past winter with 195 colonies in caves, and up to June 1, I lost 20 colonies by diarrhea, rats, and spring dwindling. The loss in spring has always been the worst trouble with me. How to evade spring dwindling, or keep the bees in the hives on cool days also bothers me. Many bees leave the hives, stimulated by the warmth of the sun, and when they strike the shade they go down and never return. I think that I will try putting a large box made dark and coming down over the hive and ground about a foot from the hive all around, and when the thermometer in the shade indicates 55° or 60°, then I will raise the box in front and let the bees out. Have any bee-keepers tried the experiment? If so, I would like to hear their experience. About all the bees in this county were lost during the past winter. The white clover is coming out finely. The linden promises to be good, also a good crop of heart's-ease and catnip. We had a little frost here last night, so it is too cool for nectar secretion to-day. I think it will take about two hot summers to warm the air after such a winter as the last was.

No Honey from White Clover.—G. W. Ashby, Valley Station, Ky., on June 13, 1885, writes thus:

I am located 10 miles below Louisville, Ky. We have had a very hard winter and late spring, and there has been a great mortality among the bees. I lost about 44, which starved with plenty of honey in the hive. Some bee-keepers lost all, some one-half, and some nearly all. There is a great interest taken in bees in this section now. We are getting rid of the box-hives very fast, and almost all are adopting the Langstroth hive. My bees came through the winter very weak, and consequently by the time I got them in good working condition the best of the season was past here. I have now 87 colonies, nearly all of which are in good working order. We had a good apple and locust bloom, but the colonies were too weak in bees to gather more than enough to rear brood. Now the white clover is in blossom, but the bees are not working on it, on account of the dry weather. I went through a large clover field near my apiary, expecting to see hundreds of bees on the white heads, but what was my surprise to find only 3 or 4 bees. I have about 4 acres of

Alsike clover, and the bees work on that pretty well. Taking all in all we are having a poor season. I commenced to extract on June 8, but I found so little honey that I quit. I have a few section-cases nearly full. I am disheartened at the way the honey season has gone. I have worked hard to get my bees strong, and now the white clover is secreting no honey, and that is our surplus source. Some of my neighbors' bees are swarming pretty freely, and going to the woods. I am now starting a new apiary about five miles from my home, and near the river, which I believe is a better location. The bees are gathering honey faster there than those at my home apiary. I visited it on June 10, and I found them ready for the sections and the extractor. I have only 13 colonies in the new place.

Abundant Bloom, but no Nectar.—J. W. Sears, Harrodsburg, Ind., on June 11, 1885, says:

It looks a little discouraging; white clover has been in bloom for about three weeks, and no honey yet, although there is plenty of bloom. Bees are killing off the drones as though it was the fall of the year, and robbers are plentiful. I commenced the season with 92 colonies, and I have increased them to 100 by natural swarming, and they are in fair condition for work, if there was only anything for them to get. If we do not get any honey from linden, we will be left out this year.

Moving and Wintering Bees.—W. B. Brown, Ferrisburgh, Vt., on June 8, 1885, writes thus:

I moved my bees late in October, 1884, 200 miles by freight. They were shut up one week, and arrived here in a snow-storm. It was three days before the weather was suitable to open the hives, and then only for about three hours. They had only two flights before cold weather set in, and then those were of only short duration. I had 15 colonies in the Bristol hives, and 10 of them were packed with paper stuffed in tightly; 5 were packed with dust or waste from the rag-cutters, from a paper mill. I put them facing the north, with a board up in front of each hive. I placed sticks crosswise of the frames, so that there was a 3/4-inch space over the top-bars for the bees to move over the frames. I put on felt blankets, such as they use on paper machines, then 6 inches of chaff on top of that, and I lost only 2 colonies, and those were lost by carelessness. One colony got out in the car by my not properly securing a cover to a hole in the honey-board, and reduced them very much. Another by the carelessness of the teamster that moved them from the depot, was upset, and some of the bees mashed; they are doing splendidly now.

Local Convention Directory.

1885. Time and place of Meeting.

July 15.—Central Illinois, at Bloomington, Ill. Wm. B. Lawrence, Sec.

Dec. 8—10.—Michigan State, at Detroit, Mich. H. D. Cutting, Sec., Clinton, Mich.

☞ In order to have this table complete, Secretaries are requested to forward full particulars of time and place of future meetings.—ED.

☞ Sample Copies of the BEE JOURNAL will be sent FREE upon application. Any one intending to get up a club can have sample copies sent to the persons they desire to interview by sending the names to this office.

Honey and Beeswax Market.

Office of the AMERICAN BEE JOURNAL,
Monday, 10 a. m., June 22, 1885.

The following are the latest quotations for honey and beeswax received up to this hour:

CHICAGO.

HONEY.—Demand is light and receipts are also light. Prices range from 10¢ to 15¢ for best grades of comb honey, and for extracted, 5¢ to 7¢.

BEESWAX—22¢ to 25¢.

R. A. BURNETT, 161 South Water St.

BOSTON.

HONEY.—We quote the following prices: Fancy white comb in 1-lb. sections, 16¢ to 18¢; the same in 2-lb. sections, 15¢ to 16¢; fancy white California 2-lb., 12¢ to 14¢. Extracted weak, 6¢ to 8¢. Sales very slow.

BEESWAX—32¢ to 34¢ per lb.

BLAKE & RIPLEY, 57 Chatham Street.

NEW YORK.

HONEY.—We quote: Fancy white clover in 1-lb. sections, 14¢ to 15¢; fair to good white clover in 1-lb. sections, 12¢ to 13¢; fancy white clover in 2-lb. sections, 13¢ to 14¢; fair to good white clover in 2-lb. sections, 11¢ to 12¢; fancy buckwheat in 1-lb. sections, 9¢ to 10¢; fancy buckwheat in 2-lb. sections, 7¢ to 8¢. Ordinary grades, no sale. Extracted white clover, 7¢ to 8¢; extracted buckwheat, 6¢ to 6½¢.

BEESWAX—Prime yellow, 20¢ to 22¢.

MCCAUL & HILDRETH BROS., 34 Hudson St.

CINCINNATI.

HONEY.—There is no new feature in the market. Our regular customers are only a few buyers at present. There is almost no outside demand, and low figures are no inducement. We quote extracted honey from 5¢ to 8¢ on arrival, and comb at 9¢ to 12¢.

BEESWAX—Good demand and arrivals plentiful. We quote 24¢ to 28¢ for good yellow on arrival.

C. F. MUTH, Freeman & Central Ave.

SAN FRANCISCO.

HONEY.—Market very quiet. Choice extracted is the only kind which buyers at present care to purchase in a wholesale way, and there is little of this sort offering. No new crop honey has yet arrived; none expected for several weeks. White to extra white comb, 8¢ to 9¢; dark to good, 4¢ to 7¢; extracted, choice to extra white, 4¢ to 5¢; amber colored, 4¢ to 4½¢.

BEESWAX—Quotable at 25¢ to 26¢—wholesale.

O. B. SMITH & Co., 423 Front Street.

CLEVELAND.

HONEY.—Is very dull just now during strawberry time, and although we buy at 14¢ to 15¢ per lb. best white 1-lb. sections, it is merely nominal, as there are no transactions. As soon as our people have satisfied their craving for acid fruits, they take very kindly to nice white honey, and we may look with confidence to a good demand in July, August and September.

BEESWAX.—Scarce at 28¢ to 30¢.

A. C. KENDEL, 115 Ontario Street.

KANSAS CITY.

HONEY.—Demand is light and prices weak. We quote choice ½-lb. sections, 15¢ to 16¢; 1-lb., 13¢ to 14¢; 2-lb., 10¢ to 11¢. Extracted, 5¢ to 6¢, according to quality. Half-pound sections of comb honey are in demand.

BEESWAX—25¢ to 30¢.

CLEMENS, CLOON & Co., cor. 4th & Walnut.

Special Notices.

Our rates for two or more copies of the book, "Bees and Honey," may be found on the Book List on the second page of this paper. Also wholesale rates on all books where they are purchased "to sell again."

For two subscribers for the Weekly BEE JOURNAL (or 8 for the Monthly) for one year, we will present a Pocket Dictionary, and send it by mail, postpaid.

If your wrapper-label reads JUNE 85, please remember that your subscription runs out with this month. Renew at once, so as not to lose any numbers.

Back Numbers.—We can supply a few more of the back numbers to new subscribers. If any want them, they must be sent for soon, before they are all gone.

Preserve your papers for reference. If you have not got a Binder we will mail you one for 75 cents, or you can have one FREE if you will send us 3 new yearly subscriptions for the BEE JOURNAL.

To Correspondents.—It would save us much trouble, if all would be particular to give their P. O. address and name, when writing to this office. We have several letters (some inclosing money) that have no name; many others having no Post-Office, County or State. Also, if you live near one post-office and get your mail at another, be sure to give the address we have on our list.

To create Honey Markets in every village, town and city, wide-awake honey producers should get the Leaflets "Why Eat Honey" (only 50 cents per 100), or else the pamphlets on "Honey as Food and Medicine," and scatter them plentifully, and the result will be a DEMAND for all of their crops at remunerative prices. "Honey as Food and Medicine" are sold at the following prices:

Single copy, 5 cts.; per doz., 40 cts.; per hundred, \$2.50. Five hundred will be sent postpaid for \$10.00; or 1,000 for \$15.00. On orders of 100 or more, we will print, if desired, on the cover-page, "Presented by," etc. (giving the name and address of the beekeeper who scatters them).

POSITION WANTED.—by S. H. Howard, an educated deaf mute. He has had 4 years' experience in bee culture and poultry business, and would be glad to work for small wages in the country. Address for 10 days, 981 Polk street, Chicago, Ills. 25A1t

FOR SALE.—45 colonies of pure Italian and Hybrid Bees, L. frame. No. 1 honey-gatherers. Address A. E. WILLIS, Towson, Balto Co. Md. 25A1t

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HAVING a large stock of Bees on hand, and my honey season nearly ended, I will sell 3-frame Nuclei, every hive full of bees and every frame filled with capped brood, except just honey enough to last while shipping, for \$3.00 each. Each Nucleus will contain a warranted Italian Queen, reared by natural swarming. If tested Queens are wanted, add 50 cts. each; the tested Queens being one year old. Size of frames, 10¼x14, or Standard L. frames. Address.

JAMES WOOD, 25A1t NORTH PRESCOTT, MASS.

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"Stern winter smiles on that auspicious clime,
The fields are florid with unfading prime;
From the bleak pole no winds inclement blow,
Mould the round hail or flake the fleecy snow;
But from the breezy deep the bliss'd innale,
The fragrant murmurs of the western zale."
—Homer.

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DOOLITTLE.—For prices of his QUEENS see page 349 of BEE JOURNAL, or send for Circular. G. M. DOOLITTLE, Borodino, N. Y. 11E15t

SEND POSTAL for Circulars of BEES, QUEENS, COMB FOUNDATION, etc., etc. Address, G. H. KNICKERBOCKER, Pine Plains, N. Y. 23D1t

1885.—QUEENS—1885.

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WE have bought a large stock of Choice Yellow Beeswax, and can furnish Dunham Comb Foundation for brood comb for 4.5¢ per lb. Thin Dunham for Sections, 5.0¢ per lb. Extra thin Vandervoort, 10 to 12 square feet to the lb., 5.5¢ per lb. Send for prices for 25 lbs. or more. Will work up wax into Foundation for 10, 15 and 20¢ per pound.

F. W. HOLMES, 9D9t COOPERSVILLE, Ottawa Co., MICH.

My 17th Annual Price-List of Italian, Cyprian and Holy-Land Bees Queens and Nuclei colonies (a specialty); also Supplies—will be sent to all who send their names and addresses. H. H. BROWN, 17D1t Light Street, Columbia County, Pa.

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Sprout Brook, Mont. Co., N. Y.

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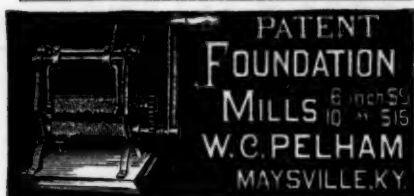
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